

SUBJECT INDEX

A

- ACE inhibitors
 - See Angiotensin-converting enzyme (ACE) inhibitors
- Acetylcholine (ACh), 423-43
- Actin binding protein-280 (ABP-280)
 - G protein-coupled receptors (GPCRs) and, 575-76
- Adefovir
 - renal elimination of, 151
- Adenosine
 - DARPP-32 and, 282
- Adipocytes
 - β -adrenergic receptors (β ARs) in, 311
 - mechanisms, 304-6
- Adipose tissue, 297-98
 - β -adrenergic receptors (β ARs) and, 310-11
 - brown adipose tissue (BAT), 298-302, 306-9
 - white adipose tissue (WAT), 298-302, 304-5, 309
- Adrenal corticotrophic hormone (ACTH)
 - corticotropin-releasing factor (CRF), 527-29, 531, 532, 539
- Adrenergic receptor(s)
 - α_2 -adrenergic receptor (α_2 -AR)
 - G protein-coupled receptors (GPCRs) and, 581
 - interactions with spinophilin, 573
 - models for G protein-coupled receptor (GPCR) targeting, 560-62
 - subtypes
 - 14-3-3 proteins and, 560-62
 - α_{2A} -adrenergic receptor (α_{2A} -AR), 582
 - α_{1B} -adrenergic receptor (α_{1B} -AR)
 - G protein-coupled receptors (GPCRs) and, 581
 - α_{2B} -adrenergic receptor (α_{2B} -AR)
 - G protein-coupled receptors (GPCRs) and, 586
 - β_1 -adrenergic receptor (β_1 -AR), 583
 - β_2 -adrenergic receptor (β_2 -AR), 583-85, 587-88
 - G protein-coupled receptors (GPCRs) and, 581, 582
 - β -adrenergic receptors (β ARs), 297-312
 - in adipocytes, 300-1
 - lipolysis and, 302-3
 - regulation in adipose tissue, 310-11
- Adrenocorticotrophic hormone (ACTH), 434
- Aequorea victoria*, 49
- Affective disorders
 - chronic stress and, 528
- Age
 - pharmacodynamics (PD) variation and, 120
 - See also Aging
- Agenda for Research on Women's Health for the 21st Century*, 499
- Aging
 - silent neurotoxicity and, 99
 - See also Age
- Agonist-elicited endocytosis, 559, 582-86
- Albumin, 503
- Alcohol
 - alcohol-related birth defects (ARBD), 98
 - alcohol related neurodevelopmental disorders (ARND), 98
 - cell injury and, 28
 - developmental effects of, 97-99
 - fetal alcohol syndrome (FAS), 97-100
 - oxidative stress and, 29
 - heptotoxicity, 30
 - liver injury and, 28, 29, 34, 37
 - liver toxicity and, 35
 - See also Drinking; Ethanol
- Alfentanil, 509
- Algorithms
 - Nonlinear Support Vector Machine (SVM), 16
- Alpha-1 acid glycoprotein (AAG), 503
- Alphaxalone, 477
 - GABA_A receptor-targeted mice and, 485, 491
- Alternative therapies
 - drug interactions with, 116-17
- Alzheimer's disease (AD)
 - CEP-1347 and, 451, 452
 - characterized, 454-55
 - JNK pathway activation

- and, 455–56
- treatments for, 455
- Amantadine
 - Parkinson's disease and, 455
 - sex-based differences in renal excretion of, 510
- Amine receptors, 44, 52
- Amino acid(s)
 - DARPP-32 and, 279–81
 - sequence of G protein-coupled receptors (GPCRs), 581
- Aminoglycoside(s), 463
- antibiotics, 467
 - hearing loss and, 451, 456–57, 467
- AMPA
 - neurotensin and, 284
- AMPA-type glutamate receptors
 - DARPP-32 and, 279–80
- Amphetamine, 278
- DARPP-32 and, 286–88
- GABA_A receptor-targeted mice and, 481
- Amylin receptor, 44
- Anal fissure
 - organic nitrates and, 67
- Analgesia
 - muscarinic agonist-induced, 434–36
- Analgesics
 - sex differences in response to, 511
- Anesthetic(s)
 - GABA_A receptor-targeted mice and, 490–92
 - local, 384–87
 - sex-based differences in pharmacodynamics, 512
- Angiogenesis
 - ephrin ligands and receptors and, 227–28
 - hedgehog signaling and, 228–29
 - hypoxia signaling pathways and, 219–21
 - sprouty and, 229–30
 - tumor, 231–32
- Angiotensin-converting enzyme (ACE) inhibitors
 - and nitrate tolerance, 72
- Antalarmin, 540
- Anthracyclines, 208
- Antiarrhythmics, 385
- Antibiotics
 - dose selection, 115
 - hearing loss and, 451, 456–57, 467
 - increasing concentrations, 124
- Anticholinergics
 - Parkinson's disease and, 455
- Anticonvulsants, 386–87
- Antidepressant(s)
 - DARPP-32 and, 285–86
 - sex-based differences in pharmacodynamics, 512
- Antiepileptic drugs
 - developmental neurotoxicant, 87, 95–97
- Antimicrobials
 - increasing concentration, 124
- Antioxidant(s), 34
 - defense(s), 34
 - CYP2E1 and, 37
 - gap junctions in cells and, 257
 - and nitrate tolerance, 71
 - possible therapies with, 35
 - reactive oxygen and, 244–45, 250
 - toxicity of alcohol and, 28
- Antipsychotic(s)
 - agents
 - gender differences in effects of, 508
 - sex-based differences in pharmacodynamics, 512
 - DARPP-32 and, 285
- drugs, 100
- Antiretrovirals
 - sex-based differences in pharmacodynamics, 512–13
- Antisense deoxynucleotide (ODN), 378, 380
- Antiviral drugs
 - renal elimination of, 151
- Anxiety
 - corticotropin-releasing factor (CRF) and, 533–42
 - drug discovery for treatment of, 540
- AP-1, 251, 258
 - carcinogenesis and, 239, 251–52, 258
- Apoptosis, 31–32, 93, 349, 467
 - apoptosis signal-regulating kinase (ASK1), 252
 - brain development of, 91–92
 - glutathione and, 245–46
 - neurogenesis and, 89
 - reactive oxygen species and, 250
- Apoptotic cell death
 - ethanol and, 99
 - phenytoin induced, 97
- Appetite-stimulating peptide
 - agouti-related peptide (AGRP), 438
- Apple juice, 116
- Arachidonic acid (AA)
 - toxicity of, 33
- Arginine vasopressin (AVP), 588, 589
- Arrestins
 - G protein-coupled receptors (GPCRs) and, 583–87
- Arrhythmia
 - ventricular, 124
- Arteries
 - M₅ mAChRs and, 441
- Arterioles

- M₅ mAChRs and, 441
 Assays
 for G-protein coupled receptors (GPCRs)
 screening, 60
 orphan G-protein coupled receptors (GPCRs), 49–51
 Astrocytes
 brain development and, 89–90
 lead exposure and, 93–94
 methylmercury and, 91, 92
 regional differences in, 403
 ATP
 ATP-binding cassette (ABC)
 multidrug transporter, 154
 transporter family, 144–45, 157
 mitochondrial function and, 350–52
 Attention disorders
 lead and, 93
 Autism
 valproic acid and, 96
 Autoreceptors
 muscarinic, 436

B
 Barbituates
 oxidative stress and, 243
 Barker hypothesis
 of silent neurotoxicity, 99
 Basal forebrain neurons
 and CEP-1347, 464–65
 Basal ganglia, 274
 Basal metabolic rate, 306
 Behavioral abnormalities, 98, 100
 Benzodiazepine(s)
 binding sites, 477, 478
 GABA_A receptor-targeted mice and, 483, 484, 486–88, 490
 β -adrenergic blockers
 and nitrate tolerance, 72
 β -amyloid
 neuronal cell death and, 463
 β -carotene
 quenches reactive oxygen species, 244
 Bicucullin
 GABA_A receptor-targeted mice and, 485
 Bioavailability
 of drugs
 disparities by sex, 500–2
 Biochemical deficits
 in M₁ mAChR-deficient mice, 425, 431
 Bioequivalence
 and pharmacodynamics (PD) studies, 121–22
 Bioflavonoids, 116
 Biogenic amines
 DARPP-32 and, 275–79
 Biological warfare
 botulinum toxin and, 173, 174
 Bioluminescence resonance energy transfer (BRET), 58
 G protein-coupled receptors (GPCRs) and, 567
 Bioterrorism
 botulinum toxin and, 174
 Birth defects
 alcohol-related birth defects (ARBD), 98
 Bladder cancer, 254–55
 Blood-brain barrier
 botulinum toxin and, 169, 176
 neurotoxicity and, 88, 90
 Pb exposure and, 93, 94
 Blood flow
 sex-based differences in, 503
 Blood pressure
 study, 125
 Bone morphogenetic protein (BMP), 404, 405
 Botulinum toxin, 167–86
 binding and transport, 171–72
 binding to the receptor, 177–79
 endocytosis
 receptor-mediated, 169, 177, 179–81
 gastrointestinal system and, 170–73, 185
 inhalation vaccine for, 175–76
 neuromuscular junction and, 176–84
 oral vaccine for, 173–74
 origin and mechanism of action, 167–70
 pH-induced translocation and, 169, 177, 180–82
 polypeptide vaccines, 168
 receptor for, 177–79
 respiratory system and, 174–75, 185
 termination of action, 184–86
 transport cell, 172–73
 transport process, 170–72
 vasculature and, 169, 176, 185
 Botulism, 167, 169, 171, 174
 categories of etiology, 170–71
 Brain
 DARPP-32 distribution in, 272–75
 development, 88–90
 ethanol exposure and, 97–99
 Pb exposure and, 92–95
 malformations, 98
 methylmercury exposure and, 90–92
 susceptible to environmental insult, 88–90

- See also Blood-brain barrier
- Brain-derived neurotrophic factor (BDNF), 404
- voltage-gated sodium channels and, 378, 379
- Breast cancer
- ErbB2 overexpression and, 204, 208
- Herceptin and, 206
- 2-Butoxyethanol
- oxidative stress and, 243
- C**
- c-Jun N-terminal kinase(s) (JNK), 251
- pathway
- neurodegeneration and, 451-57, 467
- type 3 cascade (JNK3), 586
- See also JNK pathway
- Caffeine
- DARPP-32 and, 286, 287
- Calcitonin, 44
- calcitonin gene-related peptide (CGRP), 569, 571
- calcitonin receptor (CTR)
- G protein-coupled receptors (GPCRs) and, 576
- calcitonin receptor-like receptor (CRLR), 570, 571
- Calcium (Ca)
- endoplasmic reticulum (ER) Ca^{2+}
- cell death and, 349, 351-52, 358-59
- increased intracellular, 95
- signaling factor, 251
- Calcyon
- G protein-coupled receptors (GPCRs) and, 580
- Calmodulin
- G protein-coupled receptors (GPCRs)
- and, 578-79
- Calnexin
- G protein-coupled receptors (GPCRs) and, 571
- Calpain(s), 349-62
- inhibitors, 349, 351-53, 355-56, 361-62
- ion homeostasis and, 353, 358-59
- isoforms and mechanisms of activation, 353-55
- mitochondrial dysfunction and, 349, 360-61
- in oncosis, 349-62
- plasma membrane permeability, 349, 359-60
- substrates, 349, 356-58
- Cancer(s)
- aberrant ErbB and, 195
- bladder, 254-55
- breast
- ErbB2 overexpression and, 204, 208
- Herceptin and, 206
- CYP2E1 and, 29, 37
- ErbB(s) and, 203-4, 207-8
- receptors, 196
- ErbB-induced, 202
- lung, 255
- pain management, 67
- reactive oxygen and, 239-58
- therapy
- ErbB receptors and, 204-8
- treated with Herceptin, 207
- vaccines, 222
- See also Carcinogenesis; Carcinogens; Hepatocarcinogenesis; Vaginal adenocarcinoma
- Carbamazepine, 386
- developmental toxicant, 95, 97
- Carbidopa
- Parkinson's disease
- and, 455
- Carcinogenesis
- DNA methylation and, 254-56, 258
- lipid damage and, 249, 257
- mitochondrial DNA damage and, 247-48, 257
- oxidative DNA damage and, 246-47, 257, 258
- oxidative stress and, 239-58
- process, 239-41
- redox state and, 245-46, 258
- See also Cancer(s); Carcinogens
- Carcinogens
- liver, 257
- See also Cancer(s); Carcinogenesis; Hepatocarcinogenesis
- Cardiac dysfunction
- Herceptin and, 207, 208
- See also Cardiovascular disease(s); Cardiovascular risk; Heart
- Cardioprotection
- and corticotropin-releasing factor (CRF) family members, 541-42
- See also Heart
- Cardiovascular disease(s)
- genetic mutation and, 121
- and nitroglycerin, 67
- See also Cardiac dysfunction; Cardiovascular risk; Heart
- Cardiovascular risk, 124
- See also Cardiac dysfunction; Cardiovascular disease(s); Heart
- Catechol-O-methyltransferase (COMT)
- inhibitors
- Parkinson's disease and, 455

- Catecholamines, 302
- Cdk5, 288
- DARPP-32 and, 269, 271
- metabotropic glutamate receptors and, 281
- Cell death
- apoptotic, 36
 - ethanol and, 99
 - phenytoin induced, 97
 - chronic stress and, 528
 - ethanol and, 99
 - induced, 463
 - neuronal, 406-7, 463
 - CEP-1347 and, 461-68
 - JNK signaling pathway and, 453-54
 - oncotic, 349-62
 - phenytoin induced, 97
 - programmed, 89, 462
 - switch of mode of, 35
 - two pathways, 349-50
 - two types of, 31-32
- Cell growth
- oxidative stress and, 249-50, 258
- Cell migration
- brain development and, 88, 89
- Cell proliferation
- brain development and, 88-89
 - carcinogenesis and, 239, 241
 - oxidative stress and, 249-50
- Cell replacement
- neuronal, 405, 407-10, 412, 413
- Cell surface
- G protein-coupled receptors (GPCRs)
 - delivery to, 560-72
 - localization to, 559
 - retained at, 572-80
 - stabilizing at, 573-80
 - turnover on, 580-88
- Cellular transport
- of G protein-coupled receptors (GPCRs), 559-93
- Central nervous system (CNS)
- adult
 - biology of neurogenesis, 400-5
 - neural stem cells, 402, 405-12
 - cell types of, 400
 - challenges for repair, 413
 - defects, 89
 - developing
 - vulnerable to injury, 87, 88
 - diseases, 400, 405, 408-10, 412
 - dysfunctions, 98
 - lead and, 93
 - methylmercury and, 91
 - repair
 - stem cells and, 411
 - repair mechanisms in, 399-400
- CEP-1347, 463
- effects of, 464
 - MLKs as a target of, 460-61, 468
 - neurodegenerative diseases and, 451-52
 - neuroprotective effects of, 464-67
 - pharmacological
 - development of, 457-60
 - tissue culture studies of, 461-64
- Cerebellum
- Pb-induced damage in, 94, 95
- Cerebral cortex
- ethanol exposure and, 98
 - prefrontal
 - Pb-induced damage in, 94
- Cetuximab, 206, 207
- side effects, 207, 208
- Chemical(s)
- carcinogenic, 239
 - exposure
 - silent neurotoxicity and, 99
- Chemotherapeutic agents, 205, 206
- Cetuximab and, 207
- Chemotherapy
- Herceptin and, 206
- Chlorinated compounds
- oxidative stress and, 243
- Cholecystokinin
- DARPP-32 and, 283-84
- Choline, 255
- Cholinergic nerve endings
- botulinum toxin and, 167-69, 176, 179, 185
- Cholinesterase inhibitors
- and Alzheimer's disease, 455
- Cidofovir
- renal elimination of, 151
- Cigarette smokers
- and β -blockers, 122
 - See also Cigarette smoking; Nicotine
- Cigarette smoking
- dose-exposure relationship and, 117
 - See also Cigarette smokers; Nicotine
- CK1
- metabotropic glutamate receptors and, 281
- CK2
- DARPP-32 and, 269, 271
- CKI
- DARPP-32 and, 269, 271
- C5L2, 58-59
- Clonazepam
- GABA_A receptor-targeted mice and, 489
- Clostridia
- food contaminated with, 170
- Clostridium boratii*, 167, 168

- Clostridium botulinum*, 167, 168, 170
- Clostridium butyricum*, 167, 168
- Cocaine, 278, 279
- DARPP-32 and, 286-88
- GABA_A receptor-targeted mice and, 481, 483
- M₅ mAChR-deficient mice, 442-43
- Coenzyme Q
- quenches reactive oxygen species, 244
- Cognitive function
- lead exposure and, 93
- Cognitive impairment
- valproic acid and, 96
- Cold exposure
- thermogenesis and, 306, 307
- Communication
- intercellular, 256-57
- Complex regional pain syndrome (CRPS), 384
- Computational modeling
- drug glucuronidation and, 1, 2, 14-18
- pharmacokinetics and pharmacodynamics and, 111, 112
- Concentration-response pharmacokinetics and, 113
- Constitutive active receptor technology (CART), 51
- Constitutive signaling
- G-protein coupled receptors (GPCRs) and, 49-51
- Corticosteroid release
- sex differences, 511
- Corticosterone release
- muscarinic agonist-induced, 434
- Corticotropin-releasing factor (CRF)
- CRF binding protein (CRF-BP), 526, 527, 530-31
- CRF-BP-KO mice, 531, 537
- CRF-BP-OE mice, 530-31, 537
- CRF-KO mice, 529-30
- behavioral responses to stress, 536
- CRF-OE mice, 529, 535-36, 538
- CRFR1, 525-27, 531-33, 541, 544
- antagonist(s), 536, 538, 539, 540
- antisense studies, 535
- anxiety and, 534
- CRFR1/2-KO mice, 532-33, 539-40
- CRFR2, 525-27, 529, 530, 532-33, 539, 541-42, 544
- antisense studies, 535
- behavioral effects of antagonists, 533-34
- CRFR1/2-KO mice, 532-33, 539-40
- stress-induced behaviors and, 534
- CRFR1-KO mice, 531-33, 537-38
- CRFR2-KO mice, 532-33, 538-39, 541
- CRFR2 α , 526
- CRFR2 β , 526
- CRFR2 γ , 526
- family members
- peripheral roles, 541-42
- receptor(s)
- antagonists, 540-41
- and ligands, 525
- pharmacology of, 526-27
- Corticotropin-releasing hormone (CRH), 434
- Craniofacial dysmorphologies, 98
- CREB, 278, 288
- Creutzfeld-Jakob disease, 99
- Cyclin D1 gene
- AP-1 and, 252, 258
- CYP
- enzymes
- sex-based variability in, 504-10
- expression in vitro, 10
- isoforms, 2, 8, 15, 17
- reaction phenotyping, 2, 8
- CYP1A2, 8
- gender differences in, 508
- sex-based differences in, 506
- CYP3A, 10
- expression in males and females, 502
- grapefruit juice and, 116
- hyperforin and, 116
- sex-based differences in, 506
- vary by sex, 504
- CYP3A2
- sex-based differences in, 506
- CYP3A4, 13, 16
- HepG2 cells expressing, 33, 34
- CYP3A9
- sex-based variability in, 505-6
- CYP3A41
- sex-based differences in, 506
- CYP3A44
- sex-based differences in, 506
- CYP1B1
- sex-based variability in, 505
- CYP2B6, 15
- vary by sex, 504
- CYP2C1
- sex-based differences in, 506
- CYP2C9, 8, 16
- vary by sex, 504
- CYP2C19

- gender differences in, 508
 CYP2D6, 10
 vary by sex, 504
 CYP2E1, 17, 27–37
 and oxidative stress, 27–37
 sex-based differences in, 506
 vary by sex, 504
 Cysteine sulfenic acids
 (Cys-SOH), 325–42
 Cytochrome(s) P450, 34, 115
 drug metabolism and, 1, 2
 grapefruit juice and, 116
 HepG2 cells and, 33
 in males and females, 502
 metabolism, 241
 and nitroglycerin, 69
 reactive oxygen species
 and, 243
 sex-related differences in, 504–8
 vary by sex, 504
 Cytochromes P4501A1, 117
 Cytochromes P4501A2, 117
 Cytochromes P4502E1, 117
 Cytokines
 alcohol-generated, 37
 AP-1 and, 252, 258
 Cytotoxicity
 CYP2E1-dependent, 27, 33–34
 and oxidative stress, 31
- D**
 DARPP-32, 269–89
 biochemistry of, 269–72
 dephosphorylation of, 272
 distribution in the brain, 272–75
 phosphorylation, 271–72
 altering, 275–88
 Delta
 Delta 4, 231
 Notch signaling and, 226
 δ -opioid receptors (DOR), 567–68
 Dendrites
 formation of, 91
 Depression
 corticotropin-releasing factor (CRF) and, 533, 534
 drug discovery for treatment of, 540
 Developmental delays
 valproic acid and, 96
 Developmental toxicant, 97
 Diabetes
 CYP2E1 and, 29
 nephrogenic diabetes insipidus (NDI)
 G protein-coupled receptor(s) (GPCRs) and, 559, 571, 588–89
 X-linked, 582
 Diazepam
 GABA_A receptor-targeted mice and, 479, 481, 486–89, 491
 sex-based differences in pharmacodynamics, 512
 Diethylstilbestrol, 100
 Dihydropyridine
 calcium-channel antagonists, 124
 Dileucine
 and G protein-coupled receptor (GPCR) trafficking, 563–64
 Diphenylhydantoin, 386
 developmental toxicant, 95, 97
 Disease(s)
 cell replacement therapy and, 409
 G protein-coupled receptor(s) (GPCRs) and, 559, 581–82, 588–92
 genetic defects and, 410
 oncosis and, 350
 oxidative stress and, 27–28
 reactive oxygen species and, 241–44
 silent neurotoxicity and, 99
 understanding process of, 408, 413
 Disopyramide, 119
 Distribution
 of a drug
 disparities by sex, 501–4
 Dithiothreitol, 250
 Diuretics
 and nitrate tolerance, 72
 DNA
 damage
 carcinogenesis and, 239, 240, 258
 methylation
 carcinogenesis and, 254–56, 258
 mitochondrial damage
 carcinogenesis and, 247–48, 257
 oxidative damage
 carcinogenesis and, 246–47, 257, 258
 repair of oxidative damage, 248–49, 258
 Dopamine
 agonists
 Parkinson's disease and, 455
 DARPP-32 and, 275–80
 and glutamate signaling, 281
 neurotensin and, 284
 psychostimulants and, 287
 release
 M₄ mAChRs and, 437
 M₅ mAChRs and, 441–42
 sexual receptivity and, 285
 Dopamine- and
 cAMP-regulated phosphoprotein, Mr 32 kDa (DARPP-32), 269–89
 Dopaminergic neurons
 and CEP-1347, 466–67
 substantia nigra and, 100, 466–67

- Dose**
 dose-concentration relationship, 116
 dose-exposure profile, 116
 dose-exposure relationship, 114–18
 pharmacodynamics (PD) and, 120
 dose-response
 pharmacokinetics (PK)/pharmacodynamics (PD) studies and, 127
 dose-response relationship(s), 112
 nicotine and, 122
 pharmacokinetics and, 113
 pharmacokinetics (PK)/pharmacodynamics (PD) studies and, 126
- Drinking**
 during pregnancy, 100
 See also Alcohol
- Drug(s)**
 of abuse, 286–88
 action
 and environmental exposures, 122
 active at G-protein coupled receptors (GPCRs), 43
 ADME, 3
 for Alzheimer's disease treatment, 455
 antiviral
 renal elimination of, 151
 biodisposition, 114–15, 117, 119, 122, 127
 biotransformation, 115–16
 clearance
 in smokers, 117
 data on safety and effectiveness by sex, 500
 discovery
 for stress-related disorders, 540
 discovery and development, 2
 disposition
 intrinsic host factors and, 113–14
 distribution
 disparities by sex, 501–4
 dosing regimen, 126
 drug-drug interactions, 126–27
 drug-environment interactions, 116–17, 128
 ErbB-targeting, 204–6
 excretion
 sex differences, 501, 510
 and food interaction, 126–27
 formulation(s)
 effects, 116
 and pharmacodynamics (PD), 121–22
 glucuronidation, 1–18
 extrahepatic, 14
 kinetics in vitro, 10–14
 in silico in vitro prediction, 17–18
 UGT reaction phenotyping of, 8–10, 16–18
 interactions
 transporter-mediated, 156
 metabolism, 2, 115–16
 parameters, 1–18
 sex-based differences in, 501, 504–10
 modulatory
 GABA_A receptors and, 475–92
 movement in the body, 119
 for Parkinson's disease treatment, 455
 penetration, 118–19
 pharmacodynamics, 111–28
 pharmacokinetics, 111–28
 sex-based differences in, 499–510, 513
 renal clearance of, 510
 response
 genetic variations and, 121
 retention, 119
 sex-based differences in adverse reactions to, 513
 tolerance, 123
 toxicity, 115, 117, 126
 susceptibility to, 114
 transporters
 renal, 137–57
 Dubin-Johnson syndrome, 148
 Dynamins
 G protein-coupled receptor (GPCR) endocytosis and, 583–86
 Dyskinesia, 286
 Dyslipidaemia, 56
 Dystonia
 botulinum toxin and, 167
- E**
- Ebselen**
 alcohol-induced liver injury and, 28
 Ectopic discharge, 381–82
 EGF-related peptide growth factors
 ligand family, 197
 Electrophysiological deficits in M₁ mAChR-deficient mice, 425, 430–31
 Embryogenesis
 ErbB(s), 201–2
 receptors, 196
 Enantiomers
 biodisposition and, 119
 pharmacodynamics (PD) and, 123
 Endocrine disruptors, 100
 Endocrine stress response, 525, 527–29
 Endocytosis
 agonist-elicited, 559, 582–86

- agonist-evoked receptor, 559, 582-86
 botulinum toxin and, 168, 169, 174, 176
 receptor-mediated
 botulinum toxin and, 169, 177, 179-81
 Endophilins, 564
 Endoplasmic reticulum (ER), 6
 Endothelial cells
 Pb exposure and, 93-94
 Endothelial dysfunction
 nitrate-induced, 79-80
 Endothelial nitric oxide synthase (eNOS), 67, 68, 71, 76, 78-81
 gene, 121
 Endothelial stem cells
 tumor angiogenesis and, 231
 Endothelium
 vascular
 organic nitrates and, 67, 79-81
 Enflurane, 477
 GABA_A receptor-targeted mice and, 481-83, 485, 491
 Environment
 drug-environment interactions, 128
 Environmental agents
 neuropathology
 developmental of, 87-101
 Environmental exposures
 and drug action, 122
 Enzyme(s)
 activity
 drug-metabolizing, 115
 CYP
 sex-based variability in, 504-10
 DNA repair, 248-49
 drug metabolizing, 1-18
 nitrate action and tolerance and, 69-71
 Eosinophils
 reactive oxygen species and, 241
 Ephrin(s)
 angiogenesis and, 227-28
 Epidermal growth fact (EGF)-related peptides, 195, 196
 Epidermal growth factor (EGF) receptors, 195
 Epinephrine, 302
 Epithelial cells
 botulinum toxin and, 171, 172, 174-75, 186
 ErbB(s)
 in adult mice, 202
 cancer treatment and, 207-8
 evolved, 196
 human cancers and, 203-4
 mouse embryogenesis and, 201-2
 receptor(s), 195-209
 cancer therapy and, 204-8
 dimerization, 197-99
 intracellular signaling, 199-200
 signaling, 197-200
 Erythromycin, 509
 metabolism
 sex-based differences in, 506
 Erythropoietin (EPO)
 ErbB receptors and, 198
 Estrogen
 DARPP-32 and, 284-85
 replacement therapy (HRT)
 pharmacokinetics and, 509-10
 sex-based differences in GI motility, 500, 502
 Ethanol
 alcoholic liver injury and, 33
 cells treated with, 31
 CYP2E1 and, 28
 DARPP-32 and, 286, 287
 developmental
 toxicant, 87, 97-99
 GABA_A receptor-targeted mice and, 481, 482, 485
 hepatocyte toxicity and, 28
 and oxidative stress, 28
 toxic actions on the liver, 27
 See also Alcohol
 Ethnic groups
 pharmacodynamics (PD)
 variation and, 120
 Etomidate
 GABA_A receptor-targeted mice and, 482, 484, 491
 Exocytosis
 botulinum toxin and, 169, 170, 183, 186
 Exposure-effect relationship
 pharmacodynamics (PD)
 and, 120, 123
 Exposure-response
 relationship(s)
 pharmacodynamics (PD)
 and, 123-24
 pharmacokinetics (PK)/
 pharmacodynamics (PD)
 studies and, 126
 response to drugs and, 121
 Extracellular domain (ECD1)
 of CRFR1, 544
 Extracellular signal-regulated kinases (ERK), 251, 303-6, 586, 587
 F
 Faroe Islands
 methylmercury exposure in, 92
 Fasting
 CYP2E1 and, 29, 37
 Fat absorption
 in newborn infants, 114
 Fatty acids
 adipose tissue and, 298
 CYP2E1 and, 37

- Ferrous sulfate
 gender-specific variation, 502
 Fetal alcohol syndrome (FAS), 97-99, 100
 oxidative stress and, 29
 Fetal hydantoin syndrome, 97
 Fibroblast growth factors (FGFs)
 ErbB receptors and, 198
 Flecainide, 385
 Fluorescence activated cell sorting (FACS), 49, 59, 230
 Fluorescence Imaging Plate Reader (FLIPR), 50
 Fluorescence resonance energy transfer (FRET), 591
 Fluoroquinolones
 sex-based differences in, 503
 Fluoxetine, 285, 286
 Follicle-stimulating hormone receptor (FSHR), 571
 Food
 contaminated with Clostridia, 170
 and drug interaction, 126-27
 intake
 M₃ mAChR-deficient mice and, 427, 438-39
- G**
 G protein-coupled receptor(s) (GPCRs), 43-60, 200, 282, 559-93
 agonist-evoked endocytosis, 559, 582-86
 amino sequence of, 581
 delivery to cell surface, 560-72
 dimerization, 58
 G protein-coupled receptor kinase (GRK), 583-86
 interactions with arrestins, 583-87
 recombinant expression of, 48-49
 retained at the cell surface, 572-80
 screening assays, 49-51
 turnover on the cell surface, 580-88
 Gamma aminobutyric acid (GABA)
 DARPP-32 and, 281
 G protein-coupled receptor (GPCR) oligomerization and, 566-67
 GABA_A receptors, 95-96, 287, 475-92
 α 1 GABA_A receptor subunit knockout mice, 476-77, 479-81
 α 5 GABA_A receptor subunit knockout mice, 477, 481
 α 1 (H101R) GABA_A receptor knockin mice, 486-88
 α 6 GABA_A receptor subunit knockout mice, 477-78, 481-82
 α 2 (H10R) GABA_A receptor knockin mice, 488
 α 3 (H126R) GABA_A receptor knockin mice, 488-89
 α 5 (H105R) GABA_A receptor knockin mice, 489-90
 β 2 GABA_A receptor subunit knockout mice, 477-78, 482
 β 3 GABA_A receptor subunit knockout mice, 477-78, 482-83
 β 3 (N265M) GABA_A receptor knockin mice, 490-91
 δ GABA_A receptor subunit knockout mice, 484-85
 γ 2 GABA_A receptor subunit knockout mice, 478, 483-84
 ρ 1 GABA_A receptor subunit knockout mice, 485
 GABA_B
 14-3-3 proteins and, 580
 receptor, 44
 neurons, 274-75
 valproic acid and, 96
 Ganaxalone
 GABA_A receptor-targeted mice and, 484
 Gap junctional modification
 oxidative stress and, 256-57
 Gastrointestinal motility
 sex-based differences in, 500
 Gastrointestinal system
 botulinum toxin and, 169, 170-73, 185
 gClq-R
 G protein-coupled receptors (GPCRs) and, 572
 Gender
 pharmacokinetics and pharmacodynamics and, 499-513
 Gene(s)
 antiangiogenic and vascular targets, 230-31
 expression
 carcinogenesis and, 239, 240, 241, 258
 oxidative stress and, 250-54, 258
 serial analysis of gene expression (SAGE), 230
 valproic acid and, 96
 regulation

- changes, 73-74
transcription
voltage-gated sodium channels and, 378
- Genetic polymorphism
drugs and, 2
- Genetic variability
pharmacokinetics (PK)
studies and, 114-15, 117
response to drugs and, 121
- Gentamicin
hearing loss and, 456-57
- Glial cell-derived
neurotrophic factor (GDNF)
voltage-gated sodium channels and, 378-80, 382
- Glial cells
affected in diseases, 410
brain development and, 89-90
in diseased areas, 406
exposure to ethanol, 98-99
generation of, 400
- Gliotic scar, 410
- Glomerular filtration rate (GFR), 510
- Glucose
intolerance, 298
- Glucuronidation
drug, 1-18
- Glutamate
DARPP-32 and, 279-81
neurotensin and, 284
- Glutaredoxin, 245
- Glutathione (GSH), 27, 35, 250, 327, 328
depletion, 31-33
oxidative stress and, 244-45
precursors
alcohol-induced liver injury and, 28
quenches reactive oxygen species, 244
- Glutathione reductase (GR), 328-30
- Glutathione S-transferase (GST)
and nitroglycerin, 69, 75-76
- Gonadotropin releasing hormone (GnRH)
receptor, 559, 591-92
- Grapefruit juice
cytochromes P450 (CYP3A) and, 116
- Green fluorescent protein (GFP), 49, 59
- Green tea catechin, 257
- Growth factors
and neuronal cell death, 462
- Growth hormone (GH)
ErbB receptors and, 198, 200
- Growth retardation
ethanol and, 97
- Guam's disease, 99
- Gustatory system
- G protein-coupled receptors (GPCRs), 567
- ## H
- Hair cell(s)
aminoglycoside-induced death of, 461
death
antibiotics and, 451, 456-57, 467
cochlear, 452
loss, 467
- Halothane, 477
GABA_A receptor-targeted mice and, 481, 483, 485, 491
- Hearing loss
antibiotics and, 451, 456-57, 467
CEP-1347 and, 452
JNK pathway activation in, 456-57, 467
- Heart
congestive heart failure and nitroglycerin therapy, 73
disease
and nitroglycerin, 73
M₂ mAChRs and, 432
See also Cardiac dysfunction;
Cardioprotection;
Cardiovascular disease(s); Cardiovascular risk
- Hedgehog signaling, 228-29
- Hemagglutinins (HA), 168-69, 171, 185
- Hepatic cells
CYP2E1-mediated oxidative stress, 35
- Hepatic clearance (CL_H)
of drugs, 1-3, 10-12, 18
- Hepatic extraction ratio (E_H), 1, 2, 10, 18
- Hepatic metabolism
of drugs in humans, 1-3
- Hepatitis B
alcohol and, 37
- Hepatitis C
alcohol and, 37
- Hepatocarcinogenesis, 255
See also Cancer(s); Carcinogens; Liver
- Hepatocytes
CYP2E1-overexpressing, 33
death inducers, 32
toxicity, 28
- Hepatoma HepG2 cell lines
CYP2E1, 27, 29-35
- Herbal preparations
interactions with drugs, 116
- Herceptin, 204, 206-8
- Heteroreceptors
muscarinic, 436-37
- Highly active antiretroviral therapy (HAART)

- sex differences in response to, 513
- Hippocampal subgranular zone
adult neurogenesis in, 401
- Hippocampus
ethanol exposure and, 98
Pb-induced damage in, 94-95
phenobarbital and, 96-97
proliferating cell clusters in, 403
- HM74A, 54-57
- Homeostasis
organismal
corticotropin-releasing factor (CRF) family and, 525-44
- Homer
cell surface G protein-coupled receptors (GPCRs), 574-75
- Homone sensitive lipase (HSL), 303
- Hormonal fluctuations
pharmacokinetics and, 508-10
- Hormone(s)
CYP2E1 and, 29
production, 534
See also Estrogen; Progesterone
- Hsp70
G protein-coupled receptors (GPCRs) and, 572
- Human immunodeficiency virus (HV)
pharmacokinetics
variability by sex, 512-13
- Hydralazine
and nitrate tolerance, 72
- 8-Hydroxydeoxyguanosine (OH8dG), 247, 249, 255
- Hydroxyl radical
oxidative DNA damage and, 246
- Hyperactivity, 97
lead and, 93
- Hyperalgesia
inflammatory models, 379-80
sodium channels and, 377-80
- Hyperforin
in St. John's wort, 116
- Hypogonadotrophic hypogonadism
G protein-coupled receptor (GPCR) mislocalization and, 591
- Hypolipidemic agents, 125
- Hypothalamic-pituitary-adrenal (HPA) axis
hormone production, 534
stress response
corticotropin-releasing factor (CRF) and, 527-33
- Hypothermia
muscarinic agonist-mediated, 433
- Hypoxia, 230-31
adult neural stem cells and, 406
hypoxia-inducible factor 1 (HIF1), 219
signaling pathways and, 219-21
- I**
- Immunosuppressants, 116
- In vitro-in vivo correlation
drug metabolism and, 1, 2, 4, 10-14
- Infants
fat absorption in, 114
- Inflammation
neurogenic, 379-80
- Insulin resistance, 298
- Interleukin-1, 253
- Interneurons
GABAergic, 476
- Intracellular poisoning
botulinum toxin and, 182-84
- Intracellular signaling
ErbB receptors and, 199-200
- Ion homeostasis
calpain and, 353, 358-59
- IQ scores
blood lead levels (BLLs) and, 93
decreased, 97
- Iressa, 205, 207
side effects, 207, 208
- Iron, 34
chelated, 30
chelators
toxicity of alcohol and, 28
CYP2E1 and, 37
liver injury and, 28, 33
- Isoflurane
GABA_A receptor-targeted mice and, 491
- Isoform(s)
CYP, 2, 8, 15, 17
drug metabolism and, 1, 2
UGT, 6-7, 10, 13, 15-18
UGT isoform substrate selectivity, 7-8, 15
- J**
- JNK pathway
activation in Alzheimer's disease, 455-56
activation in hearing loss, 456-57, 467
activation in Parkinson's disease, 456
CEP-1347 and, 460-64, 468
MLK family regulates, 453-54
See also C-Jun N-terminal kinase(s) (JNK)

K

- κ -opioid receptors (KOR), 567-68
- K252a
 - neurotrophic activities of, 458-59
 - semisynthetic, 459-60
- Kanamycin
 - hearing loss and, 456-57
- Kidney
 - drug clearance and, 14
 - See also Renal clearance; Renal drug elimination
- Kinase(s)
 - ErbB receptors and, 200
 - extracellular
 - signal-regulated kinases (ERK), 251, 303-6, 586, 587
 - G protein-coupled receptor kinase (GRK), 583-86
 - kinase insert domain (KDR), 221
 - mixed lineage kinases (MLK)
 - biology of, 452-54
 - family, 452-53
 - neurodegeneration and, 451-68
 - target of CEP-1347, 460-61, 468
 - receptor tyrosine kinase (RTK), 195
 - stress-activated protein kinase (SAPK), 451
 - tyrosine kinase
 - inhibitor(s), 196, 204-5
 - See also C-Jun N-terminal kinase(s) (JNK); Mitogen-activated protein (MAP); Protein kinase A (PKA); Protein kinase C (PKC); Protein kinase G (PKG)
- Kupffer cell(s), 241, 243, 244

L

- L-arginine
 - and nitrate tolerance, 72
- L-buthionine sulfoximine (BSO)
 - cells treated with, 31-33
- L-DOPA, 286
- Lamotrigine, 386-87
- Laval University Disability Scale, 467
- Lead (Pb)
 - developmental
 - neurotoxicant, 87, 88, 92-95, 100
 - synaptic connections and, 89
- Learning
 - disabilities, 97
 - disorders
 - lead and, 93
 - in M₁ mAChR-deficient mice, 425, 429-30
 - M₂ mAChRs and, 434
- Leptin, 297
- Leutenizing
 - hormone-releasing hormone (LHRH), 122-23
- Levodopa, 127
 - Parkinson's disease and, 455
- Lidocaine, 385-86
- Ligand(s)
 - ErbB, 197
 - receptors and, 196, 199, 203
 - at orphan G-protein coupled receptors, 43-60
- Lipid(s)
 - damage
 - carcinogenesis and, 249, 257
 - orphan G-protein coupled receptors (GPCRs) and, 52-53
 - peroxidation, 28, 30, 31, 33, 34, 36

- Lipolysis, 302-3
 - Lipopolysaccharide (LPS), 100
 - Liver
 - injury
 - alcohol and, 27-29, 33, 34, 37
 - microsomal drug
 - metabolism, 10-13
 - toxicity
 - alcohol-induced, 35
 - tumor promoters, 257
 - See also Carcinogens; Hepatocarcinogenesis
 - Locomotor activity
 - in M₁ mAChR-deficient mice, 425, 429
 - Long-term potentiation (LTP)
 - Pb-induced changes in, 94
 - Lung cancer, 255
 - See also Cancer(s)
 - Lutropin/choriogonadotropin receptor (LHR), 571
- M**
- M cells
 - botulinum toxin and, 172-73
 - M₂ mAChR-deficient mice, 423-24, 426-27, 431-37
 - M₄ mAChR-deficient mice, 423-24, 427-28, 431-32, 435-38
 - Macrophages
 - reactive oxygen species and, 241
 - Madin-Darby canine kidney (MDCK) cells, 560-62, 565, 573
 - botulinum toxin and, 171-72
 - plasma membrane
 - permeability changes and, 349, 359-60
 - Malondialdehyde (MDA), 249
 - Mammary gland

- ErbB receptors and, 202
 MAP kinase
 See Mitogen-activated protein (MAP)
 Maturation
 drug metabolism and, 115
 MDR1
 MDR1/p-glycoprotein, 154
 Methionine, 255
 Membrane trafficking
 of G protein-coupled receptors (GPCRs), 559-93
 Memory
 M₂ mAChRs and, 434
 tasks
 in M₁ mAChR-deficient mice, 426, 429-30
 Menopause
 pharmacokinetics and, 509-10
 Menstrual cycle
 pharmacokinetics and, 508-9
 Mental retardation, 98
 carbamazepine and, 97
 valproic acid and, 96
 Mephenytoin, 508
 Metal(s)
 ions
 oxidative stress and, 243
 redox-active
 cells treated with, 31-34
 Methionine sulfoxide
 reductases (MSRs), 336-37
 Methotrexate (MTX)
 in combination therapy, 156
 organic anion transporters (OATs) and, 146-48
 protein (MRP) 3
 transporters and, 149
 Methylation
 DNA
 carcinogenesis and, 254-56, 258
 Methylmercury (MeHg)
 developmental neurotoxicant, 87, 88, 90-92, 100
 Metronidazole
 sex-based differences in, 503
 Mexiletine, 385
 Mice
 $\alpha 1$ GABA_A receptor subunit knockout mice, 476-77, 479-81
 $\alpha 5$ GABA_A receptor subunit knockout mice, 477, 481
 $\alpha 1$ (H101R) GABA_A receptor knockin mice, 486-88
 $\alpha 6$ GABA_A receptor subunit knockout mice, 477-78, 481-82
 $\alpha 2$ (H10R) GABA_A receptor knockin mice, 488
 $\alpha 3$ (H126R) GABA_A receptor knockin mice, 488-89
 $\alpha 5$ (H105R) GABA_A receptor knockin mice, 489-90
 $\beta 2$ GABA_A receptor subunit knockout mice, 477-78, 482
 $\beta 3$ GABA_A receptor subunit knockout mice, 477-78, 482-83
 $\beta 3$ (N265M) GABA_A receptor knockin mice, 490-91
 CRF-BP-KO, 531, 537
 CRF-BP-OE, 530-31, 537
 CRF-KO
 behavioral responses to stress, 536
 CRF-OE, 529, 535-36, 538
 CRFR1-KO, 531-33, 537-38
 CRFR2-KO, 532-33, 538-39, 541
 δ GABA_A receptor subunit knockout mice, 484-85
 DARPP-32 knockout, 277-79, 282, 284-88
 deficient for both corticotropin-releasing factor (CRF) receptors, 532-33
 deficient for corticotropin-releasing factor (CRF-KO), 529-30
 $\gamma 2$ GABA_A receptor subunit knockout mice, 478, 483-84
 GABA_A receptor-targeted mice, 475-92
 lacking GABA_A receptor subunits, 475-78
 M₁ mAChR-deficient, 425-26, 428-31
 M₂ mAChR-deficient, 423-24, 426-27, 431-37
 M₃ mAChR-deficient, 423-24, 427, 432-33, 438-40
 M₄ mAChR-deficient, 423-24, 427-28, 431-32, 435-38
 behavioral phenotypes, 427, 437-38
 M₅ mAChR-deficient, 423-24, 428, 441-43
 muscarinic acetylcholine receptor knockout, 423-43
 $\rho 1$ GABA_A receptor subunit knockout, 485
 UcnI-KO, 536
 UcnI-KO), 530
 Microcephaly, 97
 Microencephaly, 98
 Microglia
 brain development and, 89

- Microsomes**
 oxidative stress and, 30–31
Microtubules
 methylmercury and, 91, 92
Midazolam
 clearance
 sex-related difference in, 508–9
 GABA_A receptor-targeted mice and, 482, 484
 metabolism
 sex-related difference in, 506, 507
Minamata disease, 91
Mineral supplements, 116
Mitochondria
 brown adipose tissue and, 299
 damage by CYP2E1-derived oxidants, 34
Mitochondrial damage
 toxic agents and, 32–33, 36
Mitochondrial DNA
 damage
 carcinogenesis and, 247–48, 257
Mitochondrial dysfunction
 calpain and, 349, 360–61
Mitochondrial function
 and ATP, 350–52
Mitochondrial membrane
 potential, 32–33, 36
Mitochondrial permeability
 transition (MPT)
 calpain and, 360–61
Mitogen-activated protein (MAP)
 carcinogenesis and, 251–52, 255, 258
 kinase (MAPK), 199, 200, 278, 452, 586
 β -adrenergic receptors (β ARs) and, 304–5, 311
 in M₁ mAChR-deficient mice, 431
 metabotropic glutamate receptors and, 280
 p38, 304, 305, 307, 308
 Spry 4 and, 229–30
Mixed lineage kinases (MLK)
 See Kinases, mixed lineage
Mizolastine
 gender-specific variation, 502
Monoamine oxidase (MAO)
 inhibitors
 Parkinson's disease and, 455
Mood disorders
 chronic stress and, 528
Morepinephrine, 302
Morphine
 M₅ mAChR-deficient mice, 442–43
Multidrug
 resistance-associated protein(s) (MRPs)
 family, 148–49
 transporter families, 141, 144–45
Multidrug resistance
 transporter-1 (MDR-1), 502
Muscarinic acetylcholine
 receptors (mAChRs), 423–43
Muskelin
 G protein-coupled receptors (GPCRs) and, 577
Mutation(s)
 carcinogenesis and, 239, 240, 258
 DNA
 carcinogenesis and, 247–48, 257
 in neoplasia, 247
Myelin-derived growth
 inhibitors, 410
N
N-acetyl cysteine (NAC), 250, 252
N methyl D aspartate (NMDA) receptors
 Pb exposure and, 94
Na⁺/H⁺ exchange regulatory cofactor (NHERF)
 G protein-coupled receptors (GPCRs) and, 587–88
NADH peroxidase, 328–29
NADPH
 CYP2E1 and, 30
NASH
 CYP2E1 and, 29
Na_v 1.1, 374
Na_v 1.2, 374
Na_v 1.3, 374, 381–82
Na_v 1.5, 374, 375
Na_v 1.6, 374
Na_v 1.7, 374–75, 380, 383
Na_v 1.8, 371, 374–81, 387–88
 and neuropathic pain, 382–84
Na_v 1.9, 374–76, 379, 381, 387
 and neuropathic pain, 384
NBI 30775, 540, 541
Necrosis, 31–32
NEM-sensitive factor (NSF)
 G protein-coupled receptors (GPCRs) and, 587–88
Neocortex
 neurogenesis in, 408
Neomycin
 hair cells and, 463
 hearing loss and, 456–57
Neonates
 drug disposition in, 114
Neoplasia
 chemically induced, 239
 induction of, 240–41
Nephrogenic diabetes insipidus (NDI)
 See Diabetes
Nerve growth factor (NGF), 462, 463
 PKC activity and, 457–58

- voltage-gated sodium channels and, 378–80
- Neural networks
dynamics, 475–76
- Neural stem cells, 400–1
in adult CNS, 402, 405–12
fate specification of, 404–5
proliferation of, 404
- Neurodegeneration
c-Jun N-terminal kinase (JNK) pathway and, 451–57, 467
- Neurodegenerative diseases, 399
genetic defects and, 410
and mixed lineage kinases, 451–68
- Neurogenesis
adult, 412
environmental control of, 402–5
in the adult brain, 399–413
adult hippocampal, 401–2
biology of, 400–5
cellular control of, 403
cortical, 408
dopaminergic, 408
excess of neurons and, 89
following lesion, 412
hippocampal, 406
lesion-induced, 408, 409
limited to specific regions, 401–2
molecular control of, 403–5
- Neuromedin U, 44
- Neuromodulators, 282–83
- Neuromuscular junction
botulinum toxin and, 176–84
- Neuron(s)
basal forebrain and CEP-1347, 464–65
dopaminergic, 410–12
and CEP-1347, 466–67
excess of, 89
generation of, 411
immature
generation of, 407
migrating, 405
migration
brain development and, 91–92
from neural stem cells, 401
neurogenesis and, 406
new, 399, 400, 406, 408, 410, 411, 413
after lesion, 412
newly generated, 401–2
sensory primary afferent, 371–74
and prostaglandins, 377
striatal
DARPP-32 and, 275
stages in development, 402
steps in integration of, 401
striatal
subpopulations, 274–75, 278
superior cervical ganglion (SCG), 462, 463
CEP-1347 and, 464
- Neuropathology
developmental
of environmental agents, 87–101
- Neuropeptide(s)
DARPP-32 and, 283
neuropeptide Y (NPY1R), 54
- Neuropilins
vascular endothelial growth factor (VEGF) and, 223–24
- Neurotensin, 284
- Neurotoxicity
developmental, 87–101
silent, 87, 99–100
- Neutrophils
reactive oxygen species and, 241
- NF- κ B
carcinogenesis and, 239, 251–54, 258
oxidative stress and, 35, 36
- Nicotine
cravings, 123
dose-response relationship and, 122
sex differences in response to, 511
See also Cigarette smoking
- Nicotinic acid receptor, 44, 54–57
- Nina A
G protein-coupled receptor (GPCRs) trafficking and, 568–69
- Nitrate(s)
metabolism, 67, 69–71
organic, 67–81
tolerance, 71–79
- Nitrogen (N)
oxidative stress and, 239
- Nitroglycerin (NTG), 67–81
- 8-Nitroguanine, 247
- NMDA
neurotensin and, 284
- NMDA receptor
DARPP-32, 279–80, 287
- Nonesterified fatty acids (NEFAs), 298, 302
- Nonhemagglutinin (NTNH), 168–69, 171, 185
- Notch
signaling, 224–26, 229
- NSAIDs
in combination therapy, 156
organic anion transporters (OATs) and, 145, 146, 148
- Nucleoside reverse transcriptase inhibitors (NRTIs)
sex-based differences in pharmacodynamics, 512
- Nucleotide
sequence homology
orphan G-protein coupled receptors (GPCRs) and, 52–54

- transport systems, 155–57
- Nucleus accumbens
dopamine release in,
441–42
- O**
- 12-*o*-tetradecanoylphorbol-
13-*o*-acetate, 257
- Obesity, 298
 β -adrenergic receptors
(β ARs) and, 310–11
CYP2E1 and, 29, 37
- ODR-4
G protein-coupled receptor
(GPCR) delivery, 569
- OhrR
redox signaling and, 340
- Olfactory sensory neurons
(OSN)
G protein-coupled receptor
(GPCR) trafficking and,
569
- Oligodendrocytes
brain development and,
89–90
- Oligomerization
of G protein-coupled
receptors (GPCRs),
565–67
- Oligonucleotides
antisense studies with,
534–35
- Omeprazole, 508
- Oncosis, 349–62
- Ontogeny
DARPP-32 and, 273
- Opioid(s)
analgesics
sex differences in
response to, 511
DARPP-32 and, 283
- Organic anion transporter(s)
(OAT)
families, 142–43
family, 145–47
identification of, 145–51
systems, 141–51, 156
- functional
characteristics, 141,
145
- Organic anion transporter
polypeptide(s) (OATP),
141–43
family, 147–48, 157
- Organic cation transporter(s)
(OCT)
family, 149–54
identification of, 152–54
systems, 151–54, 157
functional
characteristics, 152
- Osteoporosis
organic nitrates and, 67
- Ototoxicity
aminoglycoside-induced,
457
- Oxidative stress
in alcohol toxicity, 28
carcinogenesis and, 239–58
cell growth regulation and,
249–50, 258
CYP2E1 and, 27–37
diseases and, 27–28
gap junctional
modification, 256–57
gene expression and,
250–54, 258
microsomal, 30
vascular nitrate tolerance
and, 68, 76–79
- Oxygen (O)
reactive
cancer, 239–58
sources, 241–44
- OxyR
redox signaling and,
338–40
- P**
- P-aminohippurate (PAH)
MRP2 and, 149
and organic anion transport
(OAT), 141, 145, 146, 147
- P-aminohippuric acid (PAH)
pharmacokinetics, 510
- P-glycoprotein (P-gp)
gender-specific variation,
502
hyperforin and, 116
MDR1/p-glycoprotein, 154
transport activity, 156
- Pain
chronic
sodium channel blockers
and, 371
treatment of, 372
complex regional pain
syndrome (CRPS), 384
neuropathic, 381–82,
384–87
and anticonvulsants,
386–87
sodium channels in,
380–84
sex differences in response
to, 511
- Parkinsonism-Dementia,
99
- Parkinson's disease (PD),
127, 410
CEP-1347 and, 452
developing, 100
JNK pathway activation in,
456
treatment, 286, 455, 467
- Pentobarbital
GABA_A receptor-targeted
mice and, 481, 482, 484
- Peptide receptor, 44
- Peptide transport systems,
154–55, 157
- Peroxidases
bacterial
in redox signaling,
331–34
cysteine based
in redox signaling,
330–36
- Peroxioredoxins
and redox signaling,
334–38

- Peroxisomes
oxygen species and, 243
- Peroxyntirite
DNA damage and, 246-47
- pH-induced translocation
botulinum toxin and, 169, 177, 180-82
- Pharmacodynamics (PD),
111-13, 120-28
differences in the sexes,
499, 510-13
extrinsic factors and,
121-22
intrinsic factors and,
120-21
limitations, 123-25
sex-related disparities in,
499, 500
- Pharmacokinetics (PK),
111-22, 124-28
of drugs
sex-based differences in,
499-510, 513
extrinsic factors and,
116-17
intrinsic factors and,
113-16
limitations, 118-19
- Phenobarbital
developmental
neurotoxicant, 95-96
- Phenylethanolamine
N-methyltransferase
(PNMT), 530
- Phenytoin, 386
developmental toxicant,
95, 97
- Phorbol esters
oxidative stress and, 243
- Phosphatidyl inositol (PI)
in M₁ mAChR-deficient
mice, 431
- Phosphodiesterase inhibitors
and nitrate tolerance, 72
- Placenta growth factor
(PLGF), 220, 221
- Plasma
membrane permeability
calpain and, 349, 359-60
sex-based differences in,
503
- Platelet-derived growth factor
(PDGF)
ErbB receptors and, 198
- Polychlorinated biphenyls
(PCBs)
developmental
neurotoxicants, 88
in the Faroe Islands, 92
- Polycyclic aromatic
hydrocarbons, 117
- Polyproline
and G protein-coupled
receptor (GPCR)
trafficking, 565
- Polysialated glycoprotein
neural cell adhesion
molecule (PSA-NCAM),
405
- Polyunsaturated fat
alcohol-induced liver
injury and, 28
- Polyunsaturated fatty acids
alcoholic liver injury and,
33
cells treated with, 31-34
CYP2E1 and, 37
- Prednisolone
pharmacokinetics, 509
sex-based differences in,
503
sex-based
pharmacodynamic
differences, 510-11
- Pregnancy
binding proteins and,
503-4
drinking during, 100
- Progesterone
DARPP-32 and, 284-85
sex-based differences in GI
motility, 500, 502
- Prooxidants
CYP2E1 and, 37
- Propofol, 477
GABA_A receptor-targeted
mice and, 484, 491
sex-based differences in
pharmacodynamics, 512
- Prostaglandin E₂ (PGE₂), 377
voltage-gated sodium
channels and, 378
- Prostaglandins
sensory primary afferent
and, 377
- Protease inhibitors (PIs)
sex-based differences in
pharmacodynamics, 512
- Protein(s)
14-3-3
G protein-coupled
receptors (GPCRs) and,
580
of 30 kDa, 297
binding
pregnancy and, 503-4
sex-based differences in,
503
botulinum toxin and,
168-69
(bZIP), 251
CYP
sex-related differences
in, 504-10
ErbB receptors and, 199
G-protein coupled
receptor(s) (GPCRs) and,
43-60, 573-80, 592
human UGT, 4-5
methylmercury and, 91
PP-1 binding
DARPP-32 and, 270-71
receptor activity modifying
proteins (RAMPs),
569-70
receptor component protein
(RCP), 571
renal transporter, 137-57
sulfenic acids in redox
signaling, 325-42
uncoupling protein

- (UCP1), 300, 305, 307-9, 311
 vesicle-associated membrane protein (VAMP), 170, 184
 See also Multidrug resistance-associated protein(s) (MRPs)
- Protein carbonyl formation, 28
- Protein kinase A (PKA), 308
 β -adrenergic receptors (β ARs) and, 303, 305
 calpain and, 355
 DARPP-32 and, 269-71, 277, 278, 280, 288
 lipolysis and, 304-5
- Protein kinase C (PKC), 251, 457-58
 Pb and, 95
- Protein kinase G (PKG)
 DARPP-32 and, 269, 270, 278, 283, 288
- Protein 4.1N
 G protein-coupled receptors (GPCRs) and, 576-77
- Protein phosphatase
 DARPP-32 and, 272
- Protein phosphatase-1 (PP-1)
 DARPP-32 and, 269-71, 278, 284, 286, 288
- Protein tyrosine phosphatases (PTPs), 328
- PSD-95
 G protein-coupled receptors (GPCRs) and, 577-78
- Psychiatric disorders
 medications for, 278
- Psychotropic medications
 sex-based differences in pharmacodynamics, 512
- Q**
- Quantitative structure activity relationships (QSAR)
 drug metabolism and, 3, 14-15, 17, 18
 Quantitative structure metabolism relationships (QSMR)
 drug metabolism and, 3-4, 17, 18
- R**
- R121919, 540, 541
- Race
 pharmacodynamics (PD) variation and, 120
- Radiation, 205
 oxidative stress and, 243
- RanBP2
 G protein-coupled receptors (GPCRs) and, 571
- Ranocoumarins
 cytochromes P450 (CYP3A) and, 116
- Reaction phenotyping
 CYP, 2, 8
 drug metabolism and, 2
 in silico, 14-17
 of UGT substrates, 8-10, 16-18
 in vitro, 8-10
- Receptor(s)
 for botulinum toxin, 177-79
 G-protein coupled receptors (GPCRs), 43-60
- Receptor activity modifying proteins (RAMPs)
 G protein-coupled receptors (GPCRs) and, 569-70
- Receptor component protein (RCP)
 G protein-coupled receptors (GPCRs) and, 571
- Receptor tyrosine kinase (RTK), 195
- Recombinant expression
 of orphan G-protein coupled receptors (GPCRs), 48-49
- Redox signaling
 sulfenic acids, 325-42
- Redox state
 carcinogenesis and, 245-46, 258
 cellular, 244
- Renal clearance
 of drugs, 510
 See also Kidney; Renal drug elimination
- Renal development
 drug disposition and, 113, 114
- Renal drug elimination, 137-57
 See also Kidney; Renal clearance
- Renal drug transporters, 137-57
- Renal proximal tubule(s)
 drug transport and, 137, 149, 151, 154
 organic anion and cation transporters in, 146
- Renal transporters
 molecular characteristics, 138-40
- Respiratory system
 botulinum toxin and, 169, 174-75, 185
- Retinitis pigmentosa
 G protein-coupled receptor (GPCR) and, 559, 589-91
- Reverse transcriptase-coupled polymerase chain reaction (RT-PCR), 374
- Rhodopsin
 G protein-coupled receptors (GPCRs) and, 565, 581
 mutant, 559, 589-91
 retinitis pigmentosa, 589-91
- Rhodopsin 1 (Rh 1)

- G protein-coupled receptor (GPCRs) and, 568-69
- RNA
 nitrogen adduct, 247
- Rostral migratory pathway (RMP), 402, 406
- Roundabouts
 angiogenesis and, 230
- S
 S-adenosyl-methionine, 255
- Saccharomyces cerevisiae*, 48, 50
- Yap1-Gpx3 (Orp1), 341-42
- Salicylate, 502
- Salivary secretion
 M₃ mAChRs and, 440
 M₅ mAChRs and, 443
- Scar formation, 410
- Seizure activity
 in M₁ mAChR-deficient mice, 425, 428
- Semaphorin
 receptors, 223-24
- Sensory neurons, 371-77
 voltage-gated sodium channels in, 374-77
- Sequence homology
 and ligands for orphan G-protein coupled receptors (GPCRs), 52-54
- Ser¹⁰²
 DARPP-32 and, 269, 271
- Ser¹³⁷
 DARPP-32 and, 269, 271
 phosphorylation of DARPP-32 at, 279
- Serotonin
 DARPP-32 and, 278-79
 receptors, 287, 581
- Seychelles
 methylmercury exposure in, 92
- Signaling
 hedgehog, 228-29
 pathways
 angiogenic, 219-32
- Simliki Forest virus, 181
- Slits
 angiogenesis and, 230
- Smokers
 drug clearance in, 117
 See also Cigarette smokers
- Smoking
 dose-exposure relationship and, 117
- Smooth ER Ca²⁺-ATPase (SERCA), 351-52
- Smooth muscle
 M₂ mAChRs and, 432-33
 M₃ mAChRs and, 439-40
- Sodium channel(s)
 carbamazepine and, 97
 and hyperalgesia, 377-80
 phenytoin and, 97
 subtypes
 sensory neurons and, 373-74
 voltage-gated sodium channels (VGSCs), 371-88
- Spina bifida
 valproic acid and, 96
- Spinal cord injuries, 408
- Spinophilin
 cell surface G protein-coupled receptor (GPCR), 573
- Sprouty
 angiogenesis and, 229-30
- SSR 125543A, 540, 541
- St. John wort, 116
- Stem cells
 in CNS repair, 411
 endogenous, 405-13
 neural, 400-1
 in nonneurogenic regions, 406-7
- Steroids
 DARPP-32 and, 284-85
- Straitum
 basal ganglia and, 274
- Streptomycin
 hearing loss and, 456-57
- Stress
 chronic, 528
 corticotropin-releasing factor (CRF) receptors and ligands and, 525-44
 organismal response to, 525-33
 silent neurotoxicity and, 99
- Stress-activated protein kinase (SAPK), 451
- Stresscopin, 526
- Striatal neurons
 DARPP-32 and, 275
 subpopulations, 274-75, 278
- Striatum
 dopamine release in, 442
- Stroke, 410
- Substantia nigra
 dopaminergic neurons, 100, 410-12
 neurogenesis in, 408
- Subventricular zone (SVZ)
 adult neurogenesis in, 401
 astrocytes in, 403
 neural stem cells in, 402
 neurogenesis in, 412
 neurons from, 409
 new neurons from, 408
 proliferation of progenitor cells in, 404
- Sulfenic acid(s)
 formation and reactivity, 326-28
 in redox signaling, 325-42
 stabilization, 328-30
- Sulfhydryl groups
 methylmercury and, 91
- Sulfhydryl hypothesis
 Needleman
 and nitrate tolerance, 71-73
- Superior cervical ganglion (SCG), 462
- Superoxide
 dismutase
 alcohol-induced liver

- injury and, 28
production
 vascular nitrate tolerance
 and, 68, 76-79
Sympathetic nervous system
 (SNS)
 lipolysis and, 302
Synapses
 loss of, 89
Synaptobrevin, 170
Synaptosomal-associated
 protein of 25 kDa
 (SNAP-25), 170, 183
- T**
- Taste receptors (TRs)
 G protein-coupled, 567
Tetanus toxin, 171
Tetrodotoxin (TTX), 371, 373
 TTX-resistance (TTX-R)
 sodium currents, 371,
 375-77, 379-81, 383,
 385, 387-88
 modulation of, 378
 in neuropathic pain, 381
 PGE₂-induced
 hyperalgesia, 378
 TTX-sensitive (TTX-S)
 sodium currents, 375,
 376, 380-83, 385, 387
 in neuropathic pain, 381
TGFA, 404
 exogenous, 410-11
Theophylline, 117
Thermogenesis, 302, 306-9
 nonshivering, 298, 299,
 306
 obesity and, 310
Thermogenin, 299
Thioltransferase, 245
Thiols
 and nitrate tolerance, 71
Thionitrate oxidation
 hypothesis
 of nitrate metabolism and
 tolerance, 67, 70-72, 79
Thiopurine, 115
Thioredoxins, 245
Thr³⁴, 279
 DARPP-32
 phosphorylation and, 269,
 270, 277, 279, 280, 282,
 283, 285-88
 dephosphorylation of, 272
 phosphorylation of, 271,
 272
Thr⁷⁵
 dephosphorylation of
 DARPP-32 at, 284
 phosphorylation of
 DARPP-32 at, 277, 286
Thyroid, 100
Thyrotropin-stimulating
 hormone receptor
 (TSHR), 571
Time-resolved fluorescence
 resonance energy
 transfer (TR-FRET), 58
Tirilazad, 509
Tobacco smoke, 117
 See also Nicotine
Tocainide, 385
Tolerance
 nitrate metabolism and,
 71-79
Toxic agents
 mitochondrial damage and,
 32-33, 36
Toxicity
 alcohol, 37
 drug, 115, 117, 126
 susceptibility to, 114
 hepatocyte, 28
 synergistic, 34
Transcription factors
 redox signaling and,
 338-42
Transcriptional programs
 ErbB signaling network,
 200
Transcytosis
 botulinum toxin and, 169,
 171-73, 176
Translocation pathway
 botulinum toxin and, 168
7-Transmembrane receptor,
 45-47, 51
Transporter(s)
 drug elimination and,
 137-57
 family
 ABC, 144-45, 157
Tremor
 muscarinic
 agonist-induced, 433
Triacylglycerol (TG), 298,
 302
Tumor(s)
 angiogenesis
 endothelial stem cells
 and, 231
 ephrin ligands and
 receptors and, 227-28
 Delta-4 and, 226
 ErbB2-overexpressing,
 207-8
 ErbB receptors and, 196,
 203, 204
 growth
 Cetuximab and, 206
 hypoxia and, 220
 Iress and, 205
 Herceptin and, 206
 Iressa and, 207
 promoter, 256
 promoting compounds, 252
 promotion stage of
 carcinogenesis, 243
 suppressor genes, 254-55
 tumor endothelial markers
 (TEMs), 230-31
 tumor necrosis factor
 (TNF)
 carcinogenesis and, 253,
 258
 vascular endothelial growth
 factor (VEGF) receptors
 and, 222
 vasculature, 231-32
Tyrosine
 and G protein-coupled

- receptor (GPCR) protein, 562-63
- Tyrosine kinase inhibitor(s), 196, 204-5
- U**
- UcnI
in CRFR2 mice, 539
- UcnI-KO mice, 530, 536
- UcnIII
in CRFR2 mice, 539
- UDP-glucuronic acid (UDPGA), 4, 6
- UDP-glucuronosyltransferase (UGT)
activity in vivo, 7-8
drug metabolism and, 1, 2, 4-8, 12-14, 18
heterogeneity, 4-5
isoform substrate selectivity, 7-8, 15
isoforms, 6-7, 10, 13, 15-18
membrane localization, 6
QSMR, 17, 18
regulation of expression, 6-7
substrates, 17
reaction phenotyping, 8-10, 16-18
- Uncoupling protein (UCP1), 300, 305, 307-9, 311
- UrocortinI, 525-27, 529-30, 533, 536, 541, 542, 544
- UrocortinII, 525-27, 533, 544
- UrocortinIII, 525-27, 533, 544
- V**
- V2 vasopressin receptor (V2R), 559, 563, 567, 571, 582, 585, 588-89
- Vaccine(s)
botulinum toxin polypeptides and, 168
inhalation
for botulinum toxin, 175-76
oral
for botulinum toxin, 173-74
- Vaginal adenocarcinoma, 100
- Valproic acid
neurotoxicity, 95, 96
- Vascular endothelial growth factor (VEGF), 219, 220, 404
endocrine gland-derived, 222-23
ErbB receptors and, 198
neuropilins and semaphorin receptors and, 223-24
Notch-1 and Delta-4 and, 226
receptor family and ligands, 221-22
receptors
and tumors, 222
- Vascular endothelial growth factor (VEGFR1)
signaling, 221
- Vascular endothelium
organic nitrates and, 67, 79-81
- Vascular tolerance
nitrate metabolism and, 71-79
- Vasculature
botulinum toxin and, 169, 176, 185
- Vasodilators
and nitrate tolerance, 72
- Vasopressin (AVP)
CRF and, 527-28, 531, 532
- Verapamil
sex-based differences in pharmacokinetics, 511
sex-based differences in pharmacological effect, 502, 506-7
- Vesicle-associated membrane protein (VAMP), 170, 184
- Vitamin C
and nitrate tolerance, 71
quenches reactive oxygen species, 244
- Vitamin E, 257
alcohol-induced liver injury and, 28
HepG2 cells and, 33
and nitrate tolerance, 71
quenches reactive oxygen species, 244
- Vitamin K
and wayfarin, 122
- W**
- Warfarin
vitamin K and, 122
- X**
- Xenobiotics, 250
alter gene expression, 250-51
oxidative stress and, 243
- Xenopus laevis*, 50
- Xenopus melanophores*, 49-51
- Z**
- Zolpidem
GABA_A receptor-targeted mice and, 479, 484, 487

CUMULATIVE INDEXES

CONTRIBUTING AUTHORS, VOLUMES 40-44

A

Abdel-Rahman SM, 44:111-36
 Adams JP, 42:135-63
 Allio T, 43:125-47
 Altman RB, 42:113-33
 Anderson SP, 40:491-518
 Angers S, 42:409-35
 Aschner M, 44:87-110
 Atkinson AJ Jr, 41:347-66
 Aweeka F, 44:499-523

B

Bagdassarian CK, 41:661-90
 Baldwin LA, 43:175-97
 Bale TL, 44:525-58
 Barber DL, 42:527-52
 Barnes PJ, 42:81-98
 Bearss DJ, 43:359-79
 Bertaccini E, 41:23-51
 Besirli CG, 44:451-74
 Beutler B, 43:609-28
 Bicknell R, 44:219-38
 Blackburn TP, 40:319-34
 Blaschke TF, 44:499-523
 Blau HM, 40:295-317
 Bode-Böger SM, 41:79-99
 Böger RH, 41:79-99
 Blakely RD, 43:521-44
 Boekelheide K, 43:125-47
 Bogdanffy MS, 43:485-520
 Bolt HM, 43:485-520
 Bortner CD, 42:259-81
 Bouvier M, 42:409-35
 Bradfield CA, 40:519-61
 Brady AE, 44:559-609
 Branchek TA, 40:319-34
 Breyer MD, 41:661-90
 Breyer RM, 41:661-90

Broder S, 40:97-132
 Brown JH, 40:459-89
 Brunton LL, 41:751-73
 Burgen ASV, 40:1-16
 Burke MD, 41:297-316

C

Calabrese EJ, 43:175-97
 Carlsson A, 41:237-60
 Carlsson ML, 41:237-60
 Caro AA, 44:27-42
 Caron MG, 43:261-84
 Cederbaum AI, 44:27-42
 Chan PLS, 41:625-59
 Changeux J-P, 40:431-58
 Chun J, 41:507-34
 Cidlowski JA, 42:259-81
 Claiborne A, 44:325-47
 Clancy CE, 43:441-61
 Colamarino SA, 44:399-421
 Coles P, 41:175-202
 Collins S, 44:297-323
 Conney AH, 43:1-30
 Contos JJA, 41:507-34
 Corringer P-J, 40:431-58
 Corton JC, 40:491-518
 Costa LG, 44:87-110
 Coyle JT, 42:165-79

D

Davis KL, 41:203-36
 de Boer AG, 43:629-56
 Debouck C, 40:193-208
 Defer N, 41:145-74
 de Groat WC, 41:691-721
 Denhardt DT, 41:723-49
 Denison MS, 43:309-34
 Denker SP, 42:527-52
 De Vries L, 40:235-71

Ding X, 43:149-73
 Doull J, 41:1-21
 DuBois RN, 42:55-80

E

Eichelbaum M, 43:285-307
 Elenko E, 40:235-71
 Elliott JD, 40:177-91
 Elsayed Y, 43:199-231
 Embree-Ku ME, 43:125-47
 Eudy JD, 42:181-208
 Evans WE, 41:101-21

F

Farquhar MG, 40:235-71
 Fernandez EJ, 42:469-99
 Finnell RH, 42:181-208
 Fischer T, 40:235-71
 Fisone G, 44:269-96
 Fleming SL, 43:125-47
 Flexner C, 40:651-76
 Fromm MF, 43:285-307
 Fu H, 40:619-49
 Fukushima N, 41:507-34
 Fung H-L, 44:67-85

G

Gage FH, 44:399-421
 Gaillard PJ, 43:629-56
 Gainetdinov RR, 43:261-84
 Gandhi M, 44:499-523
 Gelineau-van Waes J, 42:181-208
 Giachelli CM, 41:723-49
 Gillette JR, 40:19-41
 Girault J-A, 44:269-96
 Giri SN, 43:73-95
 Gold MS, 44:371-97
 Golding BT, 42:325-48

Goodman JJ, 42:501-25
 Goodwin B, 42:1-23
 Greenblatt RM, 44:499-523
 Greengard P, 44:269-96
 Greenlee WF, 41:297-316
 Griffin RJ, 42:325-48
 Gu Y-Z, 40:519-61
 Guyton KZ, 41:421-42

H

Hall SJ, 43:125-47
 Hanoune J, 41:145-74
 Hardcastle IR, 42:325-48
 Harris AL, 44:219-38
 Harris RA, 41:23-51
 Hengstler JG, 43:485-520
 Hickson ID, 41:367-401
 Highfield Nickols H,
 44:559-609
 Hogenesch JB, 40:519-61
 Hogg N, 42:585-600
 Holbro T, 44:195-217
 Holford NHG, 40:209-34;
 41:625-59
 Holm-Waters S, 41:237-60
 Hook SS, 41:471-505
 Houghten RA, 40:273-82
 Hunter JC, 44:371-97
 Hurley LH, 43:359-79
 Hynes NE, 44:195-217

I

Ignarro LJ, 43:97-123
 Insel PA, 41:593-624
 Ishii I, 41:507-34

J

Javitch JA, 42:437-67
 Johnson EM Jr, 44:451-74
 Johnson KJ, 43:125-47
 Juliano RL, 42:283-323
 Jupe SC, 44:43-66

K

Kamendulis LM, 44:239-67
 Kaminsky LS, 43:149-73
 Karplus PA, 44:325-47

Kass RS, 43:441-61
 Kauffman RE, 44:111-36
 Kedzierski RM, 41:851-76
 Keefer LK, 43:585-607
 Kenakin T, 42:349-79
 Kensler TW, 41:421-42
 Kim G, 43:199-231
 Kim RB, 41:815-50;
 44:137-66
 Kimko HC, 40:209-34
 Kinsel JF, 43:463-84
 Kitteringham NR, 41:443-70
 Klaunig JE, 44:239-67
 Klein PS, 41:789-813
 Klein TE, 42:113-33
 Kliever SA, 42:1-23
 Kootstra NA, 43:413-39
 Kurokawa J, 43:441-61
 Kwon EJ, 43:125-47

L

Lai J, 44:371-97
 Law P-Y, 40:389-430
 Lebedeva I, 41:403-19
 Lee HC, 41:317-45
 Lee SJ, 41:569-91
 Lee W, 44:137-66
 Lefer DJ, 40:283-94
 Le Novère N, 40:431-58
 Lesko LJ, 41:347-66
 Li T-K, 41:53-77
 Lie DC, 44:399-421
 Liggett SB, 43:381-411
 Limbird LE, 44:559-609
 Lin JH, 41:535-67
 Linden J, 41:775-87
 Liu LF, 41:53-77
 Liu X, 44:349-70
 Loh HH, 40:389-430
 Lolis E, 42:469-99
 Lu AYH, 41:535-67

M

Mackenzie PI, 44:1-25
 Maliakal P, 42:25-54
 Marnett LJ, 42:55-80
 Martin E, 41:203-36

Martin TL, 44:297-323
 Masters SC, 40:619-49
 McCammon AJ, 43:31-45
 McEwen BS, 41:569-91
 McGraw DW, 43:381-411
 McKinnon RA, 44:1-25
 McLeod HL, 41:101-21
 Means AR, 41:471-505
 Melvin WT, 41:297-316
 Meng X, 42:25-54
 Metcalf B, 40:193-208
 Michel JJ, 42:235-57
 Miners JO, 44:1-25
 Ming G-I, 44:399-421
 Möhler H, 44:475-98
 Monga M, 43:199-231
 Monteleone JPR, 40:209-34
 Montfort WR, 41:261-95
 Murad F, 41:203-36
 Murray GI, 41:297-316
 Myers SA, 41:661-90

N

Nagata K, 40:159-76
 Nagy SR, 43:309-34
 Nairn AC, 44:269-96
 Napoli C, 43:97-123
 Nass R, 43:521-44
 Negishi M, 41:123-43
 Nemeroff CB, 41:877-906
 Neu J, 42:381-408
 Nguyen T, 43:233-60
 Nilsson M, 41:237-60
 Nishi A, 44:269-96
 Norbury CJ, 41:367-401
 North RA, 40:563-80

O

Oesch F, 43:485-520
 Ohlstein EH, 40:177-91
 O'Neill PM, 41:443-70
 Owens MJ, 41:877-906
 Ozawa CR, 40:295-317

P

Park BK, 41:443-70
 Patel SR, 43:125-47

Peck CC, 40:209-34
Petralia RS, 43:335-58
Phiel CJ, 41:789-813
Pickett CB, 43:233-60
Plaa GL, 40:43-65
Poole LB, 44:325-47
Pootoolal J, 42:381-408
Porreca F, 44:371-97
Posner GH, 41:421-42
Powis G, 41:261-95
Prybylowski K, 43:335-58
Putney LK, 42:527-52

R

Rana BK, 41:593-624
Rasoulpour RJ, 43:125-47
Redinbo MR, 42:1-23
Rees S, 44:43-66
Rezler EM, 43:359-79
Rittling SR, 41:723-49
Robidoux J, 44:297-323
Rosenquist TH, 42:181-208
Rudolph U, 44:475-98
Ruffolo RR Jr, 40:177-91

S

Sagi SA, 40:459-89
Sah VP, 40:459-89
Salahpour A, 42:409-35
Sans N, 43:335-58
Sausville EA, 43:199-231
Schnellmann RG, 44:349-70
Schenk D, 43:545-84
Schoenfeld HA, 43:125-47
Schwab M, 43:285-307
Scott JD, 42:235-57
Seasholtz TM, 40:459-89
Selkoe DJ, 43:545-84
Sheiner L, 40:67-96
Sherratt PJ, 43:233-60
Shi L, 42:437-67
Shiina T, 41:593-624

Shoham M, 41:175-202
Simpson LL, 44:167-93
Small KM, 43:381-411
Smith PA, 44:1-25
Soldin OP, 44:87-110
Song H, 44:399-421
Sorich MJ, 44:1-25
Springer ML, 40:295-317
Standly S, 43:335-58
Starkov AA, 40:353-88
Stauber A, 40:491-518
Steimer J-L, 40:67-96
Stein CA, 41:403-19
Stein CM, 41:815-50
Steinberg SF, 41:751-73
Stout SC, 41:877-906
Strassburg CP, 40:581-618
Straus SE, 43:463-84
Subramanian RR, 40:619-49
Sueyoshi T, 41:123-43
Surprenant A, 40:563-80
Svenningsson P, 44:269-96
Svensson CI, 42:553-83
Sweatt JD, 42:135-63
Syversen T, 44:87-110

T

Tan CM, 44:559-609
Tateyama M, 43:441-61
Taylor SL, 42:99-112
Tedroff J, 41:237-60
Thibonnier A, 41:175-202
Thibonnier M,
41:175-202
Thompson S, 43:125-47
Trudell JR, 41:23-51
Tsai G, 42:165-79
Tukey RH, 40:581-618
Turko IV, 41:203-36

U

Ulrich RG, 40:335-52

V

Vale WW, 44:525-58
van der Sandt ICI,
43:629-56
Van Vleet T, 44:349-70
Venter JC, 40:97-132
Verma IM, 43:413-39
Vitalone A, 44:87-110

W

Wallace KB, 40:353-88
Wang LH, 44:451-74
Wang Q, 44:559-609
Waring JF, 40:335-52
Waters N, 41:237-60
Watson RE, 42:501-25
Wehrens XHT, 43:441-61
Wei L-N, 43:47-72
Weiner JA, 41:507-34
Wenthold RJ, 43:335-58
Wess J, 44:423-50
White RE, 40:133-57
Wise A, 44:43-66
Wong CF, 43:31-45
Wong YH, 40:389-430
Wood AJJ, 41:815-50
Wright GD, 42:381-408

X

Xie H-G, 41:815-50

Y

Yaksh TL, 42:553-83
Yamakura T, 41:23-51
Yamazoe Y, 40:159-76
Yanagisawa M, 41:851-76
Yang CS, 42:25-54
Yoshimura N, 41:691-721

Z

Zhang Z-Y, 42:209-34
Zheng B, 40:235-71

CHAPTER TITLES, VOLUMES 40-44

Prefatory

PHARMACOLOGY

Targets of Drug Action	A Burgen	40:1-16
High-Throughput Screening in Drug Metabolism and Pharmacokinetic Support of Drug Discovery	RE White	40:133-57

TOXICOLOGY

Laboratory of Chemical Pharmacology, National Heart, Lung, and Blood Institute, NIH: A Short History	JR Gillette	40:19-41
Chlorinated Methanes and Liver Injury: Highlights of the Past 50 Years	GL Plaa	40:43-65
Central Role of Peroxisome Proliferator-Activated Receptors in the Actions of Peroxisome Proliferators	JC Corton, SP Anderson, A Stauber	40:491-518
Toxicology Comes of Age	J Doull	41:1-21
Induction of Drug-Metabolizing Enzymes: A Path to the Discovery of Multiple Cytochromes P450	AH Conney	43:1-30

General Topics in Pharmacology and Toxicology

Hormesis: The Dose-Response Revolution	EJ Calabrese, LA Baldwin	43:175-97
Regulatory Mechanisms Controlling Gene Expression Mediated by the Antioxidant Response Element	T Nguyen, PJ Sherratt, CB Pickett	43:233-60
Voltage-Gated Sodium Channels and Hyperalgesia	J Lai J, F Porreca, JC Hunter, MS Gold	44:371-97

RECEPTORS

5-HT ₆ Receptors as Emerging Targets for Drug Discovery	TA Branchek, TP Blackburn	40:319-34
--	---------------------------	-----------

Nicotinic Receptors at the Amino Acid Level	P-J Corringer, N Le Novère, J-P Changeux	40:431-58
Pharmacology of Cloned P2X Receptors	RA North, A Surprenant	40:563-80
Lysophospholipid Receptors	N Fukushima, I Ishii, JJ Contos, JA Weiner, J Chun	41:507-34
Genetic Variations and Polymorphisms of G Protein-Coupled Receptors: Functional and Therapeutic Implications	BK Rana, T Shiina, PA Insel	41:593-624
Prostanoid Receptors: Subtypes and Signaling	RM Breyer, CK Bagdassarian, SA Myers, MD Breyer	41:661-90
Role of Osteopontin in Cellular Signaling and Toxicant Injury	DT Denhardt, CM Giachelli, SR Rittling	41:723-49
Molecular Approach to Adenosine Receptors: Receptor-Mediated Mechanisms of Tissue Protection	J Linden	41:775-87
Glutamatergic Mechanisms in Schizophrenia	G Tsai, JT Coyle	42:165-79
Drug Efficacy at G Protein-Coupled Receptors	T Kenakin	42:349-79
Dimerization: An Emerging Concept for G Protein-Coupled Receptor Ontogeny and Function	S Angers, A Salahpour, M Bouvier	42:409-35
The Binding Site of Aminergic G Protein-Coupled Receptors: The Transmembrane Segments and Second Extracellular Loop	L Shi, JA Javitch	42:437-67
Retinoid Receptors and Their Coregulators	L-N Wei	43:47-72
Trafficking of NMDA Receptors	RJ Wenthold, K Prybylowski, S Standly, N Sans, RS Petralia	43:335-58
The Identification of Ligands at Orphan G-Protein Coupled Receptors	A Wise, SC Jupe, S Rees	44:43-66

ErbB Receptors: Directing Key Signaling Networks Throughout Life	T Holbro, NE Hynes	44:195-217
Voltage-Gated Sodium Channels and Hyperalgesia	J Lai J, F Porreca, JC Hunter, MS Gold	44:371-97
Membrane Trafficking of G Protein-Coupled Receptors	CM Tan, AE Brady, H Highfield Nickols, Q Wang, LE Limbird	44:559-609
RENAL SYSTEM		
Pharmacology of the Lower Urinary Tract	WC de Groat, N Yoshimura	41:691-721
SIGNAL TRANSDUCTION		
Physiological Functions of Cyclic ADP-Ribose and NAADP as Calcium Messengers	HC Lee	41:317-45
Cellular Mechanisms for the Repression of Apoptosis	CD Bortner, JA Cidlowski	42:259-81
Protein Sulfenic Acids in Redox Signaling	LB Poole, A Karplus, A Claiborne	44:325-47
SYNAPTIC FUNCTIONS		
The Regulator of G Protein Signaling Family	L De Vries, B Zheng, T Fischer, E Elenko, MG Farquhar	40:235-71
Pharmacology of Selectin Inhibitors in Ischemia/Reperfusion States	DJ Lefer	40:283-94
The Role of Rho in G Protein Coupled Receptor Signal Transduction	VP Sah, TM Seasholtz, SA Sagi, JH Brown	40:459-89
14-3-3 Proteins: Structure, Function, and Regulations	H Fu, RR Subramanian, SC Masters	40:619-49
Molecular Psychology: Roles for the ERK MAP Kinase Cascade in Memory	JP Adams, JD Sweatt	42:135-63

Identification of the Major Steps in Botulinum Toxin Action	LL Simpson	44:167-93
DARPP-32: An Integrator of Neurotransmission	P Svenningsson, A Nishi, G Fisone, J-A Girault, AC Nairn, P Greengard	44:269-96
Muscarinic Acetylcholine Receptor Knockout Mice: Novel Phenotypes and Clinical Implications	J Wess	44:423-50
ION CHANNELS		
Voltage-Gated Sodium Channels and Hyperalgesia	J Lai, F Porreca, JC Hunter, MS Gold	44:371-97
TRANSPORTERS		
Compartmentation of G Protein-Coupled Signaling Pathways in Cardiac Myocytes	SF Steinberg, LL Brunton LL	41:751-73
AKAP-Mediated Signal Transduction	JJC Michel, JD Scott	42:235-57
The Changing Face of the Na ⁺ /H ⁺ Exchanger, NHE1: Structure, Regulation, and Cellular Actions	LK Putney, SP Denker, DL Barber	42:527-52
Monoamine Transporters: From Genes to Behavior	RR Gainetdinov, MG Caron	43:261-84
Genetic Polymorphisms of the Human MDR1 Drug Transporter	M Schwab, M Eichelbaum, MF Fromm	43:285-307
The <i>Caenorhabditis elegans</i> Dopaminergic System: Opportunities for Insights into Dopamine Transport and Neurodegeneration	R Nass, RD Blakely	43:521-44
The Role of Drug Transporters at the Blood-Brain Barrier	AG de Boer, ICJ van der Sandt, PJ Gaillard	43:629-56

ENZYMES

Human UDP-Glucuronosyltransferases: Metabolism, Expression, and Disease	RH Tukey, CP Strassburg	40:581-618
Tumor Cell Death Induced by Topoisomerase-Targeting Drugs	T-K Li, LF Liu	41:53-77
Phenobarbital Response Elements of Cytochrome P450 Genes and Nuclear Receptors	T Sueyoshi, M Negishi	41:123-43
Regulation and Role of Adenylyl Cyclase Isoforms	J Hanoune, N Defer	41:145-74
Regulation of CYP3A Gene Transcription by the Pregnane X Receptor	B Goodwin, MR Redinbo, SA Kliewer	42:1-23
Protein Allergenicity Assessment of Foods Produced Through Agricultural Biotechnology	SL Taylor	42:99-112
The Biochemistry and Physiology of S-Nitrosothiols	N Hogg	42:585-600
Telomere Inhibition and Telomere Disruption as Processes for Drug Targeting	EM Rezler, DJ Bearss, LH Hurley	43:359-79
The Role of Calpain in Oncotic Cell Death	X Liu, T Van Vleet, RG Schnellmann	44:349-70
Mixed-Lineage Kinases: A Target for the Prevention of Neurodegeneration	LH Wang, CG Besirli, EM Johnson Jr.	44:451-74

CHEMICAL AGENTS

The Clinical Pharmacology of L-Arginine	RH Böger, SM Bode-Böger	41:79-99
The Basic and Clinical Pharmacology of Nonpeptide Vasopressin Receptor Antagonists	M Thibonnier, P Coles, A Thibonnier, M Shoham	41:175-202
Novel Effects of Nitric Oxide	KL Davis, E Martin, IV Turko, F Murad	41:203-36
Inhibition of Carcinogenesis by Tea	CS Yang, P Maliakal, X Meng	42:25-54
Nitric Oxide-Releasing Drugs	C Napoli, LJ Ignarro	43:97-123

2,5-Hexandione-Induced Testicular Injury	K Boekelheide, SL Fleming, T Allio, ME Embree-Ku, SJ Hall, KJ Johnson, EJ Kwon, SR Patel, RJ Rasoulpour, HA Schoenfeld, S Thompson	43:125-47
Progress Toward Clinical Application of the Nitric Oxide-Releasing Diazeniumdiolates	LK Keefer	43:585-607
PEPTIDES AND PROTEINS		
Protein Allergenicity Assessment of Foods Produced Through Agricultural Biotechnology	SL Taylor	42:99-112
BIOTRANSFORMATION		
Metabolism of Fluorine-Containing Drugs	BK Park, NR Kitteringham, PM O'Neill	41:443-70
Interindividual Variability in Inhibition and Induction of Cytochrome P450 Enzymes	JH Lin, AYH Lu	41:535-67
Regulation of CYP3A Gene Transcription by the Pregnane X Receptor	B Goodwin, MR Redinbo, SA Kliewer	42:1-23
Human Extrahepatic Cytochromes P450: Function in Xenobiotic Metabolism and Tissue-Selective Chemical Toxicity in the Respiratory and Gastrointestinal Tracts	X Ding, LS Kaminsky	43:149-73
Predicting Human Drug Glucuronidation Parameters: Application of In Vitro and In Silico Modeling Approaches	JO Miners, PA Smith, MJ Sorch, RA McKinnon, PI Mackenzie	44:1-25
Oxidative Stress, Toxicology, and Pharmacology of CYP2E1	AA Caro, AI Cederbaum	44:27-42
NUCLEIC ACIDS		
Cellular Responses to DNA Damage Ca ²⁺ /CaM-Dependent Kinases: From Activation to Function	CJ Norbury, ID Hickson	41:367-401
	SS Hook, AR Means	41:471-505

PHARMACOKINETICS/TOXICOKINETICS

Mitochondrial Targets of Drug Toxicity	KB Wallace, AA Starkov	40:353-88
The Integration of Pharmacokinetics and Pharmacodynamics: Understanding Dose-Response	SM Abdel-Rahman, RE Kauffman	44:111-36
Transporters and Renal Drug Elimination	W Lee, RB Kim	44:137-66

CANCER AND CARCINOGENESIS

Properties and Biological Activities of Thioredoxins	G Powis, WR Montfort	41:261-95
Cancer Chemoprevention Using Natural Vitamin D and Synthetic Analogs	KZ Guyton, TW Kensler, GH Posner	41:421-42
Inhibition of Carcinogenesis by Tea	CS Yang, P Maliakal, X Meng	42:25-54
COX-2: A Target for Colon Cancer Prevention	LJ Marnett, RN DuBois	42:55-80
Glycopeptide Antibiotic Resistance	J Pootoolal, J Neu, GD Wright	42:381-408
Altered DNA Methylation: A Secondary Mechanism Involved in Carcinogenesis	JI Goodman, RE Watson	42:501-25
Signal Transduction-Directed Cancer Treatments	EA Sausville, Y Elsayed, M Monga, G Kim	43:199-231
The Role of Oxidative Stress in Carcinogenesis	JE Klaunig, LM Kamendulis	44:239-67

CLINICAL THERAPEUTICS

Dual Protease Inhibitor Therapy in HIV-Infected Patients: Pharmacologic Rationale and Clinical Benefits	C Flexner	40:651-76
Pharmacogenomics: Unlocking the Human Genome for Better Drug Therapy	HL McLeod, WE Evans	41:101-21
Antisense Oligonucleotides: Promise and Reality	I Lebedeva, CA Stein	41:403-19
Glycopeptide Antibiotic Resistance	J Pootoolal, J Neu, GD Wright	42:381-408

- Complementary and Alternative
Therapeutics: Rigorous Research is
Needed to Support Claims JF Kinsel, 43:463-84
SE Straus

- Muscarinic Acetylcholine Receptor
Knockout Mice: Novel Phenotypes and
Clinical Implications J Wess 44:423-50

Drug Development Science

- Parallel Array and Mixture-Based
Synthetic Combinatorial Chemistry:
Tools for the Next Millennium RA Houghten 40:273-82

- A Novel Means of Drug Delivery:
Myoblast-Mediated Gene Therapy and
Regulatable Retroviral Vectors CR Ozawa, 40:295-317
ML Springer,
HM Blau

- Use of Biomarkers and Surrogate
Endpoints in Drug Development and
Regulatory Decision Making: Criteria,
Validation, Strategies L Lesko, 41:347-66
AJ Atkinson Jr.

- Molecular Basis of Environmentally
Induced Birth Defects RH Finnell, 42:181-208
J Gelineau-van Waes,
JD Eudy,
TH Rosenquist

- Protein Tyrosine Phosphatases: Structure
and Function, Substrate Specificity, and
Inhibitor Development Z-Y Zhang 42:209-34

- Designing Inhibitors of Cyclin-Dependent
Kinases IR Hardcastle, 42:325-48
BT Golding,
RJ Griffin

- Protein Flexibility and Computer-Aided
Drug Design CF Wong, 43:31-45
JA McCammon

- Gene Therapy with Viral Vectors NA Kootstra, 43:413-39
IM Verma

Systems

- Neurogenesis in the Adult Brain: New
Strategies for Central Nervous System
Diseases D Lie, H Song, 44:399-421
SA Colamarino,
G Ming, F Gage

DEVELOPMENT AND AGING

- Developmental Neuropathology of
Environmental Agents LG Costa, M Aschner, 44:87-110
A Vitalone, T Syversen,
OP Soldin

MUSCLE AND ADIPOSE TISSUE

- β -Adrenergic Receptors and Regulation of
Energy Expenditure: A Family Affair J Robidoux, 44:297-323
TL Martin,
S Collins

IMMUNE SYSTEM/INFLAMMATION

- Signal Transduction by Cell Adhesion
Receptors and the Cytoskeleton:
Functions of Integrins, Cadherins,
Selectins, and
Immunoglobulin-Superfamily Members RL Juliano 42:283-323
Structure, Function, and Inhibition of
Chemokines EJ Fernandez, E Lolis 42:469-99
Innate Immune Responses to Microbial
Poisons: Discovery and Function of the
Toll-Like Receptors B Beutler 43:609-28

CENTRAL NERVOUS SYSTEM

- Molecular Mechanisms and Regulation of
Opioid Receptor Signaling P-Y Law, YH Wong, 40:389-430
HH Loh
Anesthetics and Ion Channels: Molecular
Models and Sites of Action T Yamakura, 41:23-51
E Bertaccini,
JR Trudell,
RA Harris
Interactions Between Monoamines,
Glutamate, and GABA in
Schizophrenia: New Evidence A Carlsson, N Waters, 41:237-60
S Holm-Waters,
J Tedroff,
M Nilsson,
ML Carlsson
Drug Treatment Effects on Disease
Progression P Chan, N Holford 41:625-59
Molecular Targets of Lithium Action CJ Phiel, PS Klein 41:789-813
Neurokinin1 Receptor Antagonists as
Potential Antidepressants SC Stout, MJ Owens, 41:877-906
CB Nemeroff

Glutamatergic Mechanisms in Schizophrenia	G Tsai, JT Coyle	42:165-79
The Spinal Phospholipase-Cyclooxygenase-Prostanoid Cascade in Nociceptive Processing	CI Svensson, TL Yaksh	42:553-83
Alzheimer's Disease: Molecular Understanding Predicts Amyloid-Based Therapeutics	DJ Selkoe, D Schenk	43:545-84
Neurogenesis in the Adult Brain: New Strategies for Central Nervous System Diseases	D Lie, H Song, SA Colamarino, G Ming, F Gage	44:399-421
Muscarinic Acetylcholine Receptor Knockout Mice: Novel Phenotypes and Clinical Implications	J Wess	44:423-50
Analysis of GABA _A Receptor Function and Dissection of the Pharmacology of Benzodiazepines and General Anesthetics Through Mouse Genetics	U Rudolph, H Möhler	44:475-98
CRF and CRF Receptors: Role in Stress Responsivity and Other Behaviors	TL Bale, WW Vale	44:525-58
AUTONOMIC NERVOUS SYSTEM		
Genetic Variations and Polymorphisms of G Protein-Coupled Receptors: Functional and Therapeutic Implications	BK Rana, T Shiina, PA Insel	41:593-624
Biochemical Mechanism of Nitroglycerin Action and Tolerance: Is This Old Mystery Solved?	H-L Fung	44:67-85
CARDIOVASCULAR SYSTEM		
Endothelin System: The Double-Edged Sword in Health and Disease	RM Kedzierski, M Yanagisawa	41:851-76
K ⁺ Channel Structure-Activity Relationships and Mechanisms of Drug-Induced QT Prolongation	CE Clancy, J Kurokawa, M Tateyama, XHT Wehrens, RS Kass	43:441-61
Novel Angiogenic Signaling Pathways and Vascular Targets	R Bicknell, AL Harris	44:219-38

ENDOCRINE SYSTEM

- | | | |
|--|-------------------|-----------|
| Neurotrophic and Neuroprotective Actions
of Estrogens and Their Therapeutic
Implications | SJ Lee, BS McEwen | 41:569-91 |
|--|-------------------|-----------|

PULMONARY SYSTEM

- | | | |
|---|-----------|----------|
| Cytokine Modulators as Novel Therapies
for Asthma | PJ Barnes | 42:81-98 |
| Novel Pharmacological Approaches to
Manage Interstitial Lung Fibrosis in the
Twenty-First Century | SN Giri | 43:73-95 |

Miscellaneous

TECHNIQUES

- | | | |
|--|----------------------|-----------|
| The Impact of Genomics-Based
Technologies on Drug Safety Evaluation | JF Waring, RG Ulrich | 40:335-52 |
| Challenges for Biomedical Informatics and
Pharmacogenomics | RB Altman, TE Klein | 42:113-33 |

ENVIRONMENTAL TOXICITY

- | | | |
|--|--|------------|
| The PAS Superfamily: Sensors of
Environmental and Developmental
Signals | Y-Z Gu,
JB Hogenesch,
CA Bradfield | 40:519-61 |
| Challenging Dogma: Thresholds for
Genotoxic Carcinogens? The Case of
Vinyl Acetate | JG Hengstler,
MS Bogdanffy,
HM Bolt, F Oesch | 43:485-520 |

Pharmacology and Toxicology in the New Millennium

- | | | |
|---|--|-----------|
| Pharmacokinetic/Pharmacodynamic
Modeling in Drug Development | LB Sheiner,
J-L Steimer | 40:67-96 |
| Sequencing the Entire Genomes of
Free-Living Organisms: The Foundation
of Pharmacology in the New Millenium | S Broder, JC Venter | 40:97-132 |
| High-Throughput Screening in Drug
Metabolism and Pharmacokinetic
Support of Drug Discovery | RE White | 40:133-57 |
| Pharmacogenetics of Sulfotransferase | K Nagata, Y Yamazoe | 40:159-76 |
| Drug Discovery in the Next Millennium | EH Ohlstein,
RR Ruffolo Jr,
JD Elliott | 40:177-91 |

The Impact of Genomics on Drug Discovery	C Debouck, B Metcalf	40:193-208
Simulation of Clinical Trials	NHG Holford, HC Kimko, JPR Monteleone, CC Peck	40:209-34